

State of Wisconsin Traffic Records

2004



Program 04-05 TRAFFIC RECORDS

I. GOALS and OBJECTIVES

A. Goal

To coordinate and encourage improvements in the development and use of a complete and comprehensive state highway safety information system, and to support the planning, operational management or control and evaluation of Wisconsin's highway safety activities using the highest quality data.

1994 Baseline: WI Crash Data is among the best in the nation

B. Objectives

Objective 1: To promote data-driven highway safety decision-making in Wisconsin by state and local organizations and data users during FFY 2004.

Performance measures: Number of documented instances of use of crash, vehicle, driver, citation, linked hospital or other records used in WisDOT or other state or local agency decision-making processes. Number of trained data users.

Baseline: In 1994, WisDOT's Highway Safety Performance Plan, State Highway Plan, and some local Safe Communities program planners used many of these data sources. Program managers and local safety professionals have not had Traffic Records training, and did not perform valid project and program analyses.

Status: In 1999, a Traffic Records Assessment was performed, the WI TRCC has met quarterly, TR Strategic Plans have been published and updated annually. Problem ID for the Highway Safety Performance Plan and Annual Report are data-driven, but few program or project evaluations have been performed. No TR training has been made available.

Objective 2: To ensure vigorous participation of all interests in the State Traffic Records Coordinating Committee and to use the TRCC's Traffic Records Strategic Plan recommendations as the basis for decision-making about highway safety information systems, including the programming of 402 and 411 funds during FY2004.

Performance measure: Level of participation by interested parties in meetings of Traffic Records Coordinating Committee. Number of *Strategic Plan* recommendations for which action has begun.

Baseline: In 1999, a State Traffic Records Assessment was performed, and a TR Coordinating Committee was established.

Status: The TRCC meets quarterly. This 2004 HSP incorporates recommendations from the 2002 TR Strategic Plan and specific recommendations from the TRCC during its spring quarterly meeting. 2003-4 Strategic Plan under development with updated and operationalized objectives.

Objective 3: To improve crash and outcome reporting by increasing use of linked reports and by increasing the linkages to coroner, ambulance run and emergency department databases during FFY 2004.

Performance measure: Number of communities and agencies using linked reports for highway safety purposes. *Note: This objective is changed as of 2003: Local road information improvements will be tied to Objective 4 – Automation and has been deleted here.*

Baseline: In 1994, BOTS provided 200 communities with linked hospital discharge/ crash reports. Only crash, hospital discharge and death certificate databases are currently linkable.

Status: Linked files are available to all counties on the CODES Internet site. Approximately 200 communities receive hard copy linked data reports. Death certificate data are being linked, and the 2002 emergency department data will be available for linkage later in 2003 at the earliest. No ambulance run data are being collected by the state.

Objective 4: To improve the collection, processing and/or dissemination of traffic safety information by increasing the availability of automated data collection and quality GIS base maps with VMT and other normalizing data.

Performance Measure: Number of traffic records files programmed for automated data collection; % of files receiving data electronically; and number of hits on WisDOT and CODES Internet site. *Note: This objective is changed as of 2003. Progress toward complete statewide GIS centerline maps and VMT information for local roads will be measured.*

Baseline: In 1994, 4 communities tested new technologies for crash, geo-location and communication. No TR data were available on the WisDOT Internet site. Hospital discharge file and state death certificates are automated.

Status: In 2003, WI will complete programming for TraCS crash, citation, OWI Tracking and Warning modules; TraCS CMV Inspection and Crime/Incident modules are being investigated. The first year of automated emergency department data has been collected. Geo-location technologies are being investigated for incorporation into the TraCS system. No state GIS base map or standards exist and VMT data are not available for local roads.

II. ESTIMATED BUDGET

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Activity	Title	Fed	State	Local	Tot Prog	Loc Benefit
04-05-01	Prog Mgt/Analysis	110,000	20,000	0	130,000	27,500
04-05-02	Data Linkage	75,000	12,000	1,000	88,000	18,750
04-05-03	Analyses/Outreach	50,000	5,000	5,000	60,000	12,500
04-05-04	TraCS Rollout	50,000	10,000	25,000	85,000	12,500
402 TOTAL	(TR)	285,000	47,000	31,000	363,000	71,250
04-05-05	411 Strategic Planning	5,000	15,000	12,000	32,000	1,250
04-05-06	Crash Data Improve	215,000	75,000	200,000	490,000	53,750
411 TOTAL	(J9)	220,000	90,000	212,000	522,000	55,000
04-43-01	CODES Demonstration	58,000	2,000	7,000	67,000	14,500
403 TOTAL	(DX)	58,000	2,000	7,000	67,000	15,500
State 461	Policy Analysis	0	221,000	0	221,000	55,250
State Total	(461)	0	221,000	0	221,000	55,250
TOTAL	ALL FUNDS	563,000	360,000	250,000	1,173,000	196,000

III. PROBLEM IDENTIFICATION and PROGRAM JUSTIFICATION

A. Nature of the Traffic Records System

Information as Government Function:

One important government function is the provision of timely, accurate, complete and replicable data to be used for policy development and for the allocation of public funds to effective and cost-effective projects and programs. Traffic Records are core components of public safety, public health and public security decision support.

A "performance plan" such as this Highway Safety Plan requires good information for program and project selection and for measuring the effectiveness and cost-effectiveness of programs and projects into which public funds have been distributed. Thus, this planning function is highly

dependent upon the availability and use of quality records from a Traffic Safety Information System.

Wisconsin's Traffic Safety Information System ("Traffic Records")

A complete Traffic Safety Information System (TSIS) consists of crash, driver, vehicle, roadway, commercial motor vehicle, citation/conviction records (maintained by WisDOT), and emergency medical services, emergency department, inpatient, and rehabilitation records (maintained by the Wisconsin Department of Health & Family Services and individual health care providers). These data should be geo-coded and tied to a location reference system, associated with normalizing information such as traffic volume and demographic data, and should be made linkable through shared definitions of common data elements.

Wisconsin's TSIS is generally excellent; its crash, driver and vehicle files are particularly good. No central database or state standards exist for developing GIS base maps or geo-coding roadway-related data; as a result the state is a patchwork of variable coverages, and safety analyses can only be performed reliably in a few places.

Health care records maintained by the Bureau of Health Information are also excellent. Wisconsin does not have an EMS Run database or a Trauma Registry. An Injury Center and CIREN project exist at the Medical College of Wisconsin, but these are relatively new and not collaborating with highway safety at this time.

Uses of Traffic Records

A complete and comprehensive state traffic records system is essential for effective traffic-related injury control efforts. Traffic records provide the necessary information for tracking of trends, planning, problem identification, operational management and control, and implementation and evaluation of highway safety activities. In today's environment these records must be integrated with records supporting other public safety and security initiatives.

Behavior Change/Social Marketing – Survey Data

Since most (85% to 95%) crash causation results from human behavior, Traffic Records Systems should also contain longitudinal data about knowledge, attitudes and behaviors as well as about behavioral motivators, especially of people at greatest risk of traffic injury or those most able to effect changes in social mores and institutions.

Behavior is difficult to characterize, and behavioral change is difficult to quantify and analyze. Collection of longitudinal information about knowledge, attitudes and behaviors of target populations is vital for planning for behavioral change strategies. Planning and evaluating behavior change requires sophisticated analyses of data from a variety of sources. These analyses are applied to long-term processes with multiple intervening factors.

IV. STRATEGIES FOR IMPROVING TRAFFIC RECORDS

State Traffic Records Assessment: In 1999, a NHTSA/NAGHSR Traffic Records Assessment was performed in Wisconsin. Major recommendations of the assessment were:

- (A) create and formalize a state traffic records group with state and local representation; DONE and CONTINUING

The State Traffic Records Coordinating Committee (TRCC) was established in 1999. It has met quarterly since 2000 and has developed a *State of Wisconsin Traffic Records Strategic Plan* that it updates annually. The Strategic Plan incorporates many of the Assessment team's recommendations, adds areas not considered or emerging since the federal Assessment, and identifies priorities based on the TRCC's understanding of WI resources and challenges. 2000-2002, priorities were:

- (1) Automate the state crash form and process (and relate that automation to other law enforcement automation initiatives);
- (2) Improve and automate the collection of crash and citation location information;
- (3) Improve the records of post-crash treatment, outcomes and costs.

- (B) initiate an on-going traffic records planning process; DONE and CONTINUING

- (C) provide training and promote a user-friendly data access system; NO TRAINING; ACCESS UNDERWAY

Community activists and safety professionals in all except the largest venues have limited access to automated traffic record and other injury-related information to assist them in their community safety planning. Improved access at the state level will require increased numbers of trained data miners using SAS, easy access to standard reports, knowledge of sources for ad hoc reports and Internet access to all types of data.

- (D) adopt a common reference system; UNDERWAY

A common reference system for all safety related databases using standardized Geographical Information System (GIS) base maps is a powerful means of coordinating and analyzing the relationships among the many sources of data necessary for investigating the multiple, intersecting factors which underlie human behaviors. Planners and crime analysts already use these powerful tools. They have not yet been used for highway safety planning in Wisconsin.

Location data needs for transportation safety improvements must be integrated with the needs of the law enforcement agencies that collect roadway safety data and with the needs of other partners in state and federal public health, public safety and emergency management systems. However, Wisconsin has no state transportation base map, and no standard-setting organization or system for GIS mapping or geo-coding of public safety or other government data. Each county or community develops its own base maps and selects its own GPS or AVL system for locating public safety incidents.

How the state addresses issues of precision, collection techniques, WisDOT database design, etc. will have an effect on state and local planning and selection of safety improvements as well as on the selection of prevention and intervention strategies.

(E) ensure currency of conviction data; UNDERWAY

Wisconsin received a NHTSA Demonstration Grant to develop a Model OWI Tracking System in 2003. Included in the grant deliverables are upgrades to electronic capture and access to citation and conviction data.

(F) continue support of automated ambulance run system and get legislative mandate for ambulance run data collection. ABANDONED BY DH&FS.

Wisconsin has linked state in-patient and crash databases since 1991 using CODES software, added state mortality file data in the past two years and will begin linkage of the state emergency department records when 2002 data become available. The WEMSIS ambulance run data system was discarded by the state EMS Board and there are no plans to collect ambulance run data. The State Trauma System has been endorsed, but not funded, by the State Legislature, and a Trauma Registry will collect data only on the worst injuries, when and if it is funded.

Automated Data Collection

Wisconsin has adopted the National Model TraCS Enforcement Data Collection System. The Traffic Accident Section of the Division of Motor Vehicles (DMV) is the lead for Wisconsin's TraCS project and has organized a State TraCS Steering Committee to assure coordinated development of all collection and management systems. TAS began developing TraCS eCrash data entry forms in 2001. Model OWI Tracking System grant funds are now being used to develop the TraCS eCitation and OWI Tracking forms. The State Patrol is developing a TraCS eWarning form and investigating the use of TraCS forms for collecting commercial vehicle inspection data. The state currently plans to make the TraCS software available to all law enforcement agencies statewide during 2004. As the TraCS eCitation and OWI Tracking project matures and integrates with automated crime and court systems, citation/conviction data will be more complete and timely.

A pen-based palm or tablet data entry system for observational surveys has been programmed and is being beta-tested. It will be distributed to communities statewide for standardized observational surveys of safety belt use, helmet use, and other observations as each survey module is programmed. Roll-out is planned for 2004.

Access to Highway Safety Information

BOTS will continue to create datasets standard reports and to request that they be posted to the WisDOT Internet site.

BOTS makes its annual *Highway Safety Plan*, *Annual Report*, *Crash Facts* and *Alcohol Traffic Crash Facts* publications, Safety Fact Sheets and 5-year Community Crash Summaries available on the WisDOT Internet site. BOTS also supports the UW Center for Health Systems Research and Analysis (CHSRA) CODES Internet site that provides CODES and E-Code reports at the county level. Community-level CODES and E-Code reports are still mailed out to each county health department and to Safe Community Coalitions.

Communities participating in the automated collection of crash data using TraCS will be able to access their own automated files at the same time they forward the data to the state. When these

data are collected beginning in 2004, training for data users may have a high priority. Coordination of traffic safety analyses with existing crime analysis training is being explored.

A collaborative project is planned with the Wisconsin Division FHWA to organize a Traffic Records Assessment for one Wisconsin tribe and to use that Assessment as an opportunity for traffic records training and Tribal SMS training for all tribal communities in the state.

Location Reference

As part of the TraCS project, a Public Safety Incident Location Committee was established in 2002. This work group is researching and developing recommendations for methods, precision and other technical aspects of the collection of incident location data to be programmed into the TraCS data collection software and the underlying state databases.

The Office of Justice Assistance and the Wisconsin Land Information Association have begun to collaborate with WisDOT, public safety communications centers and local public safety agencies to take advantage of opportunities for location data capture offered by TraCS and by the new cellular 9-1-1 legislation. BOTS and OJA will jointly survey WI public safety agencies to determine the types of hardware and software they now have and plan to purchase.

BOTS and Dane County plan a project that will investigate the issues that arise when multiple public safety agencies with different hardware and software and different levels of sophistication try to coordinate their geo-coding through a unified county dispatch center. This will be used to inform the development of state standards for geocoding of crash and citation data.

Linked Data and Medical Outcome Data

(Assessment Recommendation F)

Wisconsin will continue to link crash, hospital and mortality data, and, beginning with 2002 data, will link emergency department data as well. Wisconsin recently received a CODES Data Network grant for the next five years. This grant will allow the CODES analyst to provide better vehicle information.

Institutionalization of the data linkage is currently being researched and further activity is planned for FFY2004.

Metadata

Traffic records collectors and users at all levels have limited understanding of the strengths and weaknesses of their data, the opportunities to combine or coordinate databases, or even in most cases, the simplest descriptive uses of these data, let alone inferential uses. The Traffic Records Strategic Plan recommends including data dictionaries and other metadata into standard reports. With the increasing importance of geographic data, the use of metadata is increasing and evolving slowly. Again, state leadership for system-wide planning and standard-setting is lacking.

V. ACTIVITIES and ESTIMATED FUNDING by STRATEGY

STRATEGY -- ADMINISTRATION

Activity: 04-05-01-TR PROGRAM MANAGEMENT and SAFETY ANALYSES

Problem: Problem identification, program and project development and analysis, and database development requires skilled analysts who are knowledgeable about the data. Project data must be received, entered, analyzed and returned in a timely fashion for local as well as state project and program analysis.

Objectives:

1. To assist in the development of Highway Safety Plans and Reports
2. To develop and perform analyses of programs and projects.
3. To develop more accessible and user-friendly reports and media.

Resources: \$110,000 for 1 FTE Safety Analyst, 1 FTE Data Entry Assistant, DP, travel, M&S.

Self-sufficiency: 3.0 FTE Safety Policy Analysts, 0.5 FTE Safety Analyst are state funded

Evaluation: Administrative

Activity: 04-05-05-J9 STRATEGIC PLAN REVIEW and REVISION: Complete Implementation of Year 2000 TR Strategic Plan –411 funded

Problem: Wisconsin's TRCC Committee meets quarterly to communicate about safety data improvement, oversee the implementation of the Strategic Plan for Traffic Records Improvements, recommend distribution of Sec. 402 and 411 funds to high priority initiatives and review and revise the Plan as necessary.

Objectives:

1. To review, revise and implement the year 2000 Strategic Plan by December 2004.
2. To continue studying the most effective strategies for records improvements.
3. To provide training for state traffic records leaders and TRCC members.

Resources: \$5,000 for wage & fringe or contractual services, travel and subsistence for committee meetings, presenters, and training, M&S for meeting support, the remainder to be distributed to support the plan.

Self-sufficiency: Institutionalization of coordinated traffic records/public safety information systems improvements is a top priority of the strategic plan.

Evaluation: Process – Notes of meetings, including decisions, distribution of Strategic Plan, determine use made of Strategic Plan. Reported in Annual HSP and Annual Report.

Activity: SAFETY POLICY ANALYSIS - state appropriation 461

Problem: Because of State Highway Safety Office integration within umbrella Department of Transportation, many policy and legislative initiatives have safety implications that are behavioral safety in scope. The Safety Policy Analysis Section provides expertise to WisDOT about safety data, analyses and policy development.

Objectives:

1. Produce policy studies and analyses at request of Secretary's office, other WisDOT units, or Legislature.
2. Perform ad hoc and legislatively mandated safety and program analyses.
3. Produce annual crash facts publications and fact sheets
4. Support Planning & Administrative efforts of SHSO staff

Resources: \$221,000 to support Section chief, policy analyst and research analyst.

Self-sufficiency: State funded permanent positions.

Evaluation: Annual Report. Strategic Business Planning Process.

STRATEGY -- EVALUATION – Data System Improvements - LINKAGE

Activity: 04-05-02-TR DATA IMPROVEMENTS-DATA LINKAGE

Problem: Much problem identification and program evaluation has used only fatality information and estimates of cost. Linkage of crash files with medical and vital records files can provide population-based data on medical outcomes and costs of treatment for injuries as well as fatalities. These linked data improve the quality of problem identification at the state and local level, permit identification and quantification of intervening factors and provide quality assurance for other data sources.

Objectives:

1. To 2002 crash extract files with 2002 hospital discharge files, death records and emergency department records by the end of the second quarter of the FY or as soon after the medical files are available as is practical.
2. To produce and distribute standard, user-friendly Annual Summary Reports and 200 standard community reports by the end of the third quarter of the FY.
3. To produce Safety Program reports, ad hoc reports, presentations or journal articles, as requested
4. To update & maintain the Wisconsin CODES Internet site as the primary means of distributing these data and reports..
5. To link additional EMS, ED and physician office visit data to linked crash, hospital and death records as soon as automated files are available.

Resources: \$65,000 for wage & fringe, DP, M&S - Contract for linkage; contract for research and report generation.

Self-sufficiency: May occur as funding permits state support of DH&FS Bureau of Health Information positions

Evaluation: Administrative. Describe uses made of CODES data.

Activity: 04-43-01-DX CODES DATA NETWORK COOPERATIVE AGREEMENT - 403 funded

Problem: NHTSA is creating a network of CODES projects from among the 25 states that have initiated data linkage projects. Ten of the more advanced states, such as Wisconsin, will take the lead in developing this system of state databases that can provide summable data for questions of national interest.

Objectives:

1. To assist in development of a national system of linked databases and provide quality data upon demand of questions of national interest posed by Washington.
2. To upgrade CODES software and if necessary, hardware
3. To conduct twice-monthly meetings of the State CODES Board of Directors
4. To provide quarterly activity reports to NHTSA and to BOTS
5. To produce CODES Management Reports
6. To provide aggregated data to state and local traffic safety groups and projects

Resources: \$ 58,000 to UW CHSRA under a separate Cooperative Agreement #DTNH22-07-H-07207

Self-sufficiency: This is a multi-year Cooperative Agreement.

Evaluation: Administrative - process of development, implementation and use.

STRATEGY -- EVALUATION – Data System Improvements - AUTOMATION

Activity: 04-05-04-TR DATA IMPROVEMENTS – IMPROVEMENTS in CRASH & LOCATION DATA: TraCS Software Implementation/Rollout

Problem: Wisconsin's State Traffic Records Coordinating Committee gave top priority to automating the crash data system. Wisconsin's National Model TraCS Project has been underway for two years and now includes crash and citation modules. Field report forms will be ready for pilot testing, officer training and statewide distribution during 2004. Additional modules may also be programmed and ready for testing and training during 2004.

Objectives:

1. To pilot test, evaluate, and reprogram the field report forms, adding functionality as needed.
2. To train WI Traffic Enforcement Officers in the use of the TraCS automated data collection system.
3. To support a smooth roll-out, including publicity, provision of information about records management systems, linkages to the state's law enforcement data/communications systems, etc., as required.

Resources: \$50,000 for wage & fringe or contractual services for programming, travel and training costs for programmers, trainers and officers, LTE support staff, M&S for information dissemination.

Self-sufficiency: Institutionalization of traffic records/public safety information systems coordination is a top priority of the strategic plan. Automation is highly desired and is already funded in part by LE agencies.

Evaluation: Administrative – Training and outreach materials, numbers trained, pre/post training tests. Summary of pilot test results.

Activity: 04-05-06-J9 DATA IMPROVEMENTS - AUTOMATED CRASH REPORT: Implementation of Year 2000 TR Strategic Plan –411 funded

Problem: Wisconsin's State Traffic Records Coordinating Committee gave top priority to automating the crash data system and improving location data collection and use of new technology for efficient and accurate data collection. Wisconsin is one of 19 states and Canadian provinces participating in the Iowa National Model Program for Automation of Law Enforcement Reporting. Wisconsin's 3-phase crash module project is well into its third phase. Automated crash and citation data collection, including automated location information will improve the usefulness of these reports to many end users.

Objectives:

1. To automate the Wisconsin crash and citation reporting systems and support automation of related law enforcement officer reports.
2. To automate crash location by incorporating GIS mapping and GPS location into the crash data and other data systems.
3. To maintain a coordinated statewide TraCS project by convening quarterly meetings of the TraCS Steering Committee and its location and coordination subcommittees.

Resources: \$215,000 for wage & fringe or contractual services for programmers to program the TraCS National Model software to meet Wisconsin's, training, travel for programmers and for officers. \$50,000 for GIS mapping improvements locally and for purchase of GPS or AVL units for squads or ambulances as pilot tests for statewide deployment.

Self-sufficiency: Institutionalization of traffic records/public safety information systems coordination is a top priority of the strategic plan. Depends upon perception of value by state and local collectors and users of location data

Evaluation: Administrative – Quarterly Program Reports, Meeting Notes including decisions, document experience in setting up system; impact: document information indicating improvements in speed and accuracy of data collection.

STRATEGY -- EVALUATION –Surveys and Studies

Activity: 04-05-03-TR SURVEY DEVELOPMENT and ANALYSIS

Problem: Much societal and individual behavior change results from a slow process of incremental changes in knowledge and attitudes. This plan employs education as a major strategy throughout. Although Wisconsin's traffic records system is excellent, it provides limited information about the effectiveness of our efforts in bringing about the desired behaviors. Baseline data about KAB are sketchy at best. Much problem identification, program development and evaluation in this Plan is based upon outcome data rather than the more rationally linked KAB survey data and on the regular observation of road user behavior.

Objectives:

1. To develop a survey instrument and conduct a statewide survey during 2003-4
2. To assess public opinion and beliefs about traffic safety for program planning.
3. To use these results to develop and perform program and project analyses
4. To develop accessible, effective and user-friendly reports and educational/motivational materials.
5. To purchase and program pen-based computers for use in occupant protection, motorcycle rider, pedestrian, bicyclist and other observational surveys.

Resources: \$50,000 for contract for survey services, programming services; M&S (data collection equipment)

Self-sufficiency: Observational and attitude surveys are required for safety program administration. The KAB survey will be conducted biennially for trend analyses. The OP surveys are annual and no period has yet been determined for the other observational surveys.

Evaluation: Administrative - document development, implementation and use; evaluate effect of surveys on program effectiveness.